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**PREFERENCES TOWARDS LENIENCY UNDER MANDATORY CRIMINAL SENTENCING
GUIDELINES: ROLE-IN-THE-OFFENSE ADJUSTMENTS FOR FEDERAL DRUG
TRAFFICKING DEFENDANTS**

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ABSTRACT

This paper tests whether judges and/or prosecutors manipulated mandatory federal sentencing guidelines to shorten prison sentences. It finds that, among drug traffickers convicted under the federal guidelines' former mandatory sentencing system, those who faced harsher underlying charges were found to have played significantly lower-level roles in their conspiracies. This is consistent with guideline manipulation for defendants facing longer sentences. Women received significantly larger role-in-the-offense reductions related to harsher underlying charges than men. Effects were insignificant if defendants were eligible for lower-cost alternative methods of sentence reduction, namely substantial assistance departures and safety-valve reductions from mandatory minimum sentences.

[T]he Guidelines...have made charlatans and dissemblers of us all. We spend our time plotting and scheming, bending and twisting, distorting and ignoring *the law* in an effort to achieve a just result. All under the banner of “truth in sentencing”!

—Unnamed federal judge quoted in Weinstein (1992)

I. Introduction

Researchers have found that agents in the criminal justice system sometimes bend rules to achieve more lenient penalties for defendants facing harsh punishments. Bjerk (2005) shows that state prosecutors are significantly more likely to reduce felony arrests to misdemeanor charges when a felony conviction would trigger a long, “third-strike” prison sentence.¹ Leipold (2005) finds that federal judges are more likely than federal juries to acquit defendants, and hypothesizes that judges—who, unlike juries, know the potential penalties defendants face—are likely to acquit guilty defendants who face especially severe punishments if convicted.²

Anecdotal evidence suggests that federal judges and prosecutors have manipulated the federal sentencing guidelines—a system mapping measures of a federal defendant’s crime and criminal history to a range of months imprisonment—to similar ends. In a 1992 article, federal judge Jack Weinstein of the Eastern District of New York discussed his fellow judges’ attitudes toward the guidelines, which had then been in effect for five years. Weinstein described the guidelines as “requiring an undesirably harsh outcome” with “penalties [that] are almost always inflated,” and wrote that many judges responded by gaming the guidelines to the benefit of defendants. For example, the guidelines required that “disputed facts” affecting the measure of a defendant’s crime were to be proved by “a preponderance of the evidence,” but Weinstein wrote that if such facts were to increase a defendant’s prison sentence, some judges would use higher burdens of proof, namely “clear and convincing evidence” or “proof beyond a reasonable doubt.”

¹ Bjerk (2005) reviews a literature of anecdotal findings that prosecutors reduce charges for defendants who face unduly long sentences if convicted.

² Such leniency may be selective and applied more to some groups than others. Starr and Rehani (2012), for example, find that federal prosecutors are less likely to charge whites with crimes carrying a mandatory minimum sentence than blacks arrested for the same crime.

Schulhofer and Nagel (1997) wrote that federal prosecutors behaved similarly, circumventing guidelines in 25-30% of cases to shorten sentences. One such method of prosecutorial manipulation took place during “fact bargaining” sessions with the defense, where prosecutors would agree to an unduly lenient *mitigating-role adjustment*, i.e. state that the defendant played a lower-level role in a conspiracy than the facts indicated. More lenient mitigating-role adjustments translated into shorter prison sentences.

This paper empirically tests whether defendants’ prison sentences under the mandatory federal sentencing guidelines regime—as will soon be discussed, the guidelines have not been mandatory since 2005—were indeed reduced via such offense level manipulations. It does so by examining how the severity of a drug trafficking defendant’s underlying conspiracy charge—his *base offense level*, in the parlance of the guidelines—affected the extent to which he received a more lenient mitigating-role adjustment. Specifically, I hypothesize that judges and/or prosecutors, wanting to reduce stiff guideline sentences, *ceteris paribus* gave defendants with higher base offense levels more lenient mitigating-role adjustments. This hypothesis is based on the assumption of judges’ and prosecutors’ *disutility of sentence length*, as anecdotally outlined in Weinstein (1992) and Schulhofer and Nagel (1997). Judges and prosecutors did not enjoy issuing long sentences, and exerted effort to shortening sentence by intensifying mitigating-role adjustments. Critically, I assume their efforts to reduce offense levels would be stronger at higher offense levels, where prison sentences were longer and where marginal reductions in sentence associated with offense level reductions were larger.³

The mitigating-role adjustment is optimal for studying guideline manipulations for three reasons. First, Schulhofer & Nagel (1997) specifically mention the manipulation of mitigating-role adjustments as a method of sentence reduction. Second, the size of the mitigating-role adjustment is constant at different offense levels. Other adjustments that decrease offense levels, such as the acceptance of responsibility adjustment, are larger for defendants facing more severe charges, complicating the analysis of their judicial or prosecutorial application. Third, the application of mitigating-role adjustments seems to be

³ See Appendix Table 1. For example, for a defendant with no criminal history, a decrease in final offense level from 31 to 30 decreased the minimum guideline sentence by 11 months, but a decrease from 32 to 31 decreased it by 13 months.

quite subjective—it involves deciding whether a defendant played a “minor” or “minimal” role in a conspiracy, or somewhere in between the two—perhaps granting judges and prosecutors more control over it.

Consistent with expectations, results from maximum likelihood estimations show that defendants with higher base offense levels under mandatory guidelines were awarded significantly more lenient role-in-the-offense adjustments. Effects were significantly larger for women than for men, a finding that is consistent with extensive research showing that women receive relatively lenient treatment in the criminal-justice system.

Difference-in-difference estimates show that there was no significantly more lenient mitigating-role adjustment for two sets of defendants: 1) those receiving substantial assistance departures for providing information against other defendants; and 2) those charged with mandatory minimum sentences but who were eligible to avoid them via safety-valve releases. The common theme in these results is that sentences were more likely to be reduced via role-in-the-offense manipulations only when they could not be reduced via low-cost alternative methods like substantial assistance departures and safety-valve reductions. Additional estimations concerning the 2005 *U.S. v. Booker* Supreme Court decision, which changed the sentencing guidelines from “mandatory” to “advisory,” supports these findings.

The rest of this paper is organized as follows. Section II discusses the federal sentencing guidelines system. Section III discusses this paper’s dataset and Section IV outlines the empirical strategy. Section V shows baseline results and Section VI shows several tests elucidating the baseline results. Section VII concludes.

II. The Federal Sentencing Guidelines

(Throughout this section, terms critical to the empirical portion of this paper are italicized and put in bold.) In 1984, Congress passed the Sentencing Reform Act, which abolished parole⁴ for federal crimes committed after November 1, 1987 and gave much control over criminal sentencing to the newly-

⁴ Up to 15% of a sentence to be waived for inmates exhibiting good behavior while in custody.

established United States Sentencing Commission (USSC).⁵ Sentences were to be determined at a post-conviction sentencing hearing. The USSC established a guideline system that determined a defendant's criminal sentence according to two factors: crime severity and past criminal history.⁶ The sentencing guidelines remain in place today.

Crime severity is captured by the final offense level. The final offense level, lower-bounded at 1 and upper-bounded at 43, is the sum of the *base offense level*, *adjustments*, and specific offense characteristics.

- The *base offense level* is an offense level score that corresponds with the specific crime of which a defendant has been convicted beyond a reasonable doubt. Its value is determined with the criminal conviction and before the sentencing hearing. When a defendant is convicted of multiple criminal counts, the base offense level is superseded by the *combined adjusted offense level*, which is established through a guidelines formula and is designed to ensure that defendants convicted of multiple similar charges do not receive excessive sentences. In drug trafficking crimes, the base offense level/combined adjusted offense level is determined by the amount of drugs a defendant conspired to deal.⁷
- *Adjustments* are crime-related characteristics that increase or decrease the offense level. According to the guidelines, they are determined by a judge at the sentencing hearing. Adjustments include the role a defendant played in a criminal conspiracy, whether the defendant obstructed justice, whether the defendant accepted responsibility for his crime, and more. (The combined adjusted offense level, mentioned above, technically falls under adjustments.)

⁵ For a thorough history of the considerations that led to the passage of the Sentencing Reform Act, see Stith and Kuo (1993).

⁶ The analysis here is taken from Chapters 2-6 of the *United States Sentencing Commission Guidelines Manual*, 2003 edition.

⁷ Different drug types have different scales mapping weight of drugs to base offense level.

- Specific offense characteristics are similar to adjustments, but only apply to specific crimes. They do not play a role in this paper.

This paper’s dependent variables concern the adjustment for the *role in the offense*: the role a defendant played in a criminal conspiracy. Mitigating (low-level) roles subtract from the offense level:

- a defendant who “was a minimal participant in any criminal activity” has 4 points subtracted from his offense level (hereafter this adjustment will be referred to as “*Minimal -4*”);
- a defendant who “was a minor participant” has 2 points subtracted (“*Minor -2*”); and
- for a defendant who lies “in cases falling between” minimal and minor, 3 points are subtracted (“*Minimal/Minor -3*”).

[Parentheticals added.] Adjustments for aggravating (high-level) roles are more complicated.

According to USSC §3.B.1:

- (a) if the defendant was an organizer or leader of a criminal activity that involved five or more participants or was otherwise extensive, increase [offense level] by **4** levels.
- (b) if the defendant was a manager or supervisor (but not an organizer or leader) and the criminal activity involved five or more participants or was otherwise extensive, increase by **3** levels.
- (c) if the defendant was an organizer, leader, manager, or supervisor in any criminal activity other than that described in (a) or (b), increase by **2** levels.

[Emphasis in original.] The +4 role adjustment (hereafter “*Aggravating +4*”) thus represents leaders of large drug trafficking conspiracies and *Aggravating +3* represents their lieutenants. *Aggravating +2* represents leaders and lieutenants of smaller drug-trafficking conspiracies.

The defendant’s *criminal history category* is formed by assigning point values to previous criminal convictions and periods of incarceration.⁸ Points are summed and assigned to categories, where Category I is the least severe criminal history and Category VI the most severe.

Final offense level and criminal history category are mapped to a range of potential months of imprisonment using the USSC Sentencing Table (Appendix Table 1). Higher offense levels and criminal

⁸ Each prior prison sentence of at least 13 months is assigned 3 points. Each prior prison sentence of between 2 and 13 months, and each offense committed on parole, probation, or under court supervision, is assigned 2 points. Most other convictions are assigned 1 point.

histories correspond with longer prison sentences. At the sentencing hearing, the judge chooses a specific number of months within the guideline range for the defendant to serve.⁹

Defendants can receive sentences outside the guideline range, however. One method is via a *substantial assistance departure*, which is obtained by providing evidence against another defendant. If government prosecutors informed a judge that a particular defendant had cooperated with the government and provided evidence against at least one other individual, a federal judge could sentence a defendant to any sentence beneath the guidelines (Weinstein 1999), including a period of no imprisonment.

And although the sentencing guidelines were called “mandatory” until 2005, federal judges were permitted to “depart” from them in the absence of government-requested substantial assistance departures. A judge who felt the guidelines mandated a level of imprisonment that inadequately reflected the defendant’s criminal conduct could impose a *downward departure* (sentence a defendant to less than the minimum guideline sentence) or an *upward departure* (more than the maximum guideline sentence). Such departures came at a cost: they had to be explained by the judge in writing, could not be justified by the defendant’s race, creed, sex, education, or socioeconomic status, and could not be justified by factors already covered by the base offense level, adjustments, or specific offense characteristics.

Two years after the sentencing reform act was passed, but one year before they were activated, the Anti-Drug Abuse Act of 1986 created *mandatory minimum* terms of imprisonment—usually 60 or 120 months, but also possibly 240 months or life without parole—for defendants convicted of violating specific drug laws. Judges were not permitted to sentence a defendant below the mandatory minimum term of imprisonment unless the prosecutor requested a substantial assistance departure. A *safety valve* provision in the 1994 Omnibus Crime Bill weakened the “mandatory” nature of mandatory minimum sentences. Defendants with no more than one criminal history point (i.e., a criminal history category of I) and no violent history, who had not played a high-level role in a criminal conspiracy, and who had cooperated with the government—even if that cooperation did not provide information that aided in the

⁹ Defendants in Zone A of the Sentencing Table are permitted to receive no period of imprisonment. Defendants in Zone B must receive at least one month of imprisonment, and defendants in Zone C are permitted to serve up to half their sentence via house arrest or in a halfway house.

prosecution of another—were eligible for safety-valve reductions below their mandatory minimum terms of imprisonment.

In January 2005, the U.S. Supreme Court ruled 5-4 in *U.S. v. Booker* and *U.S. v. Fanfan* that mandatory sentencing guidelines unconstitutionally violated a defendant’s right to a jury trial, and that the guidelines were heretofore advisory rather than mandatory (Mauro 2005). This effectively made judges’ imposition of downward departures and upward departures less costly.

Though the guidelines state that judges determine adjustments and specific offense characteristics at the sentencing hearing, in practice they are often negotiated before the hearing by the prosecution and the defense in a process known as *fact bargaining* (Schulhofer and Nagel 1997, Stith and Cabranes 1998). Though this paper examines whether defendants facing more severe drug-trafficking charges received significantly larger mitigating-role offense level reductions, it unfortunately cannot distinguish whether such manipulations were applied during fact bargaining or by judges themselves at the sentencing hearing.¹⁰

III. Data

The data for this paper come from Monitoring Federal Criminal Sentences (MFCS), published every fiscal year by the USSC and available via the ICPSR. MFCS collects a substantial amount of information concerning demographics, criminal history, and the crime committed by each defendant sentenced in federal court. This paper’s primary sample consists of drug traffickers who were sentenced in the fiscal years 1998-2002. Stopping in 2002 prevents the sample from being distorted by possible changes in sentencing caused by the 2003 Feeney Amendment (Freeborn and Hartmann 2010) or the 2005 *Booker* Supreme Court decision (Fischman and Schanzenbach 2012, Nutting 2013).

The sample is restricted to defendants convicted of drug trafficking for two reasons. First, such defendants received more role-in-the-offense adjustments than other types of sentenced defendants,

¹⁰ Even if role-in-the-offense adjustments are negotiated via fact bargaining, it is possible that judges’ tendencies towards leniency could affect the negotiating process. Prosecutors and defense attorneys may bargain “in the shadow of the judge” (Lacasse and Payne 1999), and agree to larger mitigating-role adjustments when facing more lenient judges.

providing more opportunity for identifying the relationship between underlying charge and manipulation of offense level. In fiscal year 2002, for example, almost 35 percent of federal defendants convicted of one count of drug trafficking received a role-in-the-offense adjustment, while less than eight percent of defendants convicted of one count of a non-drug-trafficking crime received one. Second, the mapping of amount of drugs dealt to base offense level establishes a plausibly exogenous and easily captured measure of a defendant's underlying crime (Boylan and Long 2005).

Table 1 shows the sample's summary statistics for defendants who pleaded guilty before going to trial. Defendants who received substantial assistance departures are separated from non-substantial-assistance defendants.

In non-substantial-assistance cases, almost 25 percent of defendants received a Minor -2 role adjustment, two percent received a Minimal/Minor -3 adjustment, and six percent received a Minimal -4 adjustment. Only five percent received an aggravating-role adjustment.¹¹

The average base offense level was 26.¹² Twenty-two percent of defendants received a judicially-imposed downward departure—reinforcing the idea that judges felt the sentencing guidelines were too severe—while hardly any (approximately 1 in 400) received upward departures.

Thirty-seven percent of non-substantial-assistance defendants primarily sold marijuana (the omitted drug category), approximately one-fifth primarily dealt cocaine, and another one-fifth primarily dealt crack.¹³ The average criminal history category was at Level II. Half of defendants were Hispanic and over 35 percent were not U.S. citizens. Thirteen percent of defendants were female. Fewer than half had a full high school education. Attorney data, which does not appear to be complete (the omitted category is “unreported”), shows that most defendants appeared to have court-appointed counsel while fewer were represented either by private attorneys or federal public defenders.

¹¹ A tiny handful of observations have defendants are recorded as having received both an aggravating-role adjustment and a mitigating-role adjustment. These observations are removed.

¹² As discussed in the next section, base offense level is replaced by combined adjusted offense level for defendants convicted of multiple charges.

¹³ If a defendant trafficked more than one kind of drug, the drug dummy variables represent the primary drug dealt only.

Defendants who received substantial assistance departures tended to play higher-level roles, face higher base offense levels, and have longer criminal histories. They were also more likely to be black, female, U.S citizens, high school graduates, and represented by private attorneys. Mustard (2001) and Nutting (2015) more thoroughly detail the characteristics of defendants who receive substantial assistance departures.

Another dataset is utilized in this paper to examine whether the 2005 *Booker* decision affected the relationship between base offense level and mitigating-role adjustment. This sample consists of a window of drug trafficking sentencings, from March 2004 to September 2005, around that Supreme Court ruling.

IV. Estimation Strategy

Estimations of the equation

$$R_{idt} = \Phi(C_{idt}) + \gamma X_{idt} + \lambda Z_{idt} + \theta_d + \eta_t + \varepsilon_{idt} \quad (1)$$

where i is individual defendant, t is year, and d is federal district are performed. The dependent variable R is defined as the role-in-the-offense adjustment applied to i . Since all estimations are either ordered probit or probit, equation (1) is estimated via maximum likelihood.

There are four different definitions of R in this paper. The first sets R equal to the size of i 's mitigating-role adjustment, i.e. 0 for defendants who receive no role adjustment or an Aggravating-role adjustment, -2 for defendants who received a Minor -2 adjustment, -3 for defendants who received a Minimal/Minor -3 adjustment, and -4 for defendants who received a Minimal -4 adjustment. Since there is monotonicity in the value of mitigating-role adjustments, ordered probit estimations are performed when R is defined this way. Estimations determine whether there was an overall statistically significant relationship between a defendant's charge severity and the size of his mitigating-role adjustment. Positive coefficients mean less lenient mitigating-role adjustments, higher final offense levels, and longer prison sentences; negative coefficients mean more lenient mitigating-role adjustments, lower final offense levels, and shorter prison sentences.

The second definition of R is a dummy equal to 1 if the defendant did not receive a mitigating-role adjustment and 0 if he did. (The larger value reflects “no adjustment” because “no adjustment” is associated with a higher final offense level and longer prison sentence.) Estimations using this definition of R determine whether defendants facing more serious charges were more or less likely to receive mitigating-role adjustments. Probit estimations are used when R has this definition.

The third definition sets R equal to 1 if i received either no adjustment or a Minor -2 adjustment and 0 if he received either a Minimal/Minor -3 or Minimal -4 adjustment. The fourth and final definition sets R equal to 1 if i received no adjustment, a Minor -2 adjustment, or a Minimal/Minor -3 adjustment, and 0 if he received a Minimal -4 adjustment. Estimations using these final two definitions of R respectively determine whether defendants facing more serious charges were more likely to receive Minimal/Minor -3 or Minimal -4 adjustments. Probit estimations are used when R has either of these final two definitions.

$\Phi(C_{idt})$ captures severity of the charge of which the defendant has been convicted. Charge severity is proxied by *base offense level*, or *combined adjusted offense level* for defendants convicted of multiple charges. (For simplicity, this paper combines these two variables and refers to all defendants as having a base offense level.) In some estimations it adds a dummy variable for conviction at trial.

X consists of criminality-related factors that could affect a defendant’s role-in-the-offense adjustment: dummy variables for criminal history category, weapon, and type of drug dealt; and a linear control for the number of different drugs dealt. Z consists of demographic factors: dummies for race, citizenship status, sex, education level, and type of lawyer retained; and linear controls for age and number of dependents. θ_d is a vector of federal district fixed effects, η_t is a vector of year fixed effects, and ε_{idt} is a normally distributed random error term.

Individual judges and prosecutors—who strongly influence the application of mitigating-role adjustments—are not observed in the dataset. Since judges and prosecutors tend to work exclusively in a

specific federal district, Equation (1) standard errors are clustered by district. This has the effect of increasing standard errors, making statistical significance of coefficients more difficult to attain.

IV. Results

a. Baseline results

Table 2 shows results of estimations of Equation (1) where the sample is limited to defendants who pleaded guilty (i.e., were not convicted at trial) and did not receive a substantial assistance departure. (Substantial assistance estimations will be performed later in the paper.)

Column 1 shows results of the ordered probit estimation of Equation (1). The coefficient on base offense level is significantly negative at the 10% level, showing that defendants facing more severe charges receive significantly more lenient mitigating-role adjustments to shorten their sentences. This is consistent with the hypothesis of this paper.

Column 2 shows results where R is 1 if the defendant did not receive a mitigating-role adjustment and 0 if he received one. Base offense level is insignificant, showing that facing more severe charges did not significantly change a defendant's probability of receiving a mitigating-role adjustment. In Column 3 base offense level is significantly negative, showing that defendants facing more severe charges were more likely to receive Minimal/Minor -3 adjustments than Minor -2 adjustments.¹⁴ Columns 2-3 thus show that though defendants facing higher base offense levels were not more frequently found to have played mitigating roles, they were found to have played significantly *more intensely* mitigating roles, conditional on having played a mitigating role in the first place. Column 4 shows that defendants with higher base offense levels did not receive significantly more Minimal -4 adjustments than Minimal/Minor -3 adjustments.

Other coefficients in Table 2 show that a defendant's race did not have a significant effect on mitigating-role adjustment. Women received substantially more lenient adjustments than men.

Consistent with Borjas, Grogger and Hanson (2010), non-U.S. citizens receive more lenient

¹⁴ Sample sizes are smaller in Columns 2-3 because some districts issue no Minimal/Minor -3 or Minimal -4 adjustments, causing perfect classification problems.

adjustments.¹⁵ Defendants with public defenders received more lenient adjustments while better-educated defendants and defendants represented by private attorneys received less lenient adjustments. Defendants who dealt harder drugs than marijuana (the omitted category) were much less likely to receive mitigating-role adjustments than marijuana dealers (Column 2). Defendants with weapons-related enhancements and those with longer criminal histories received less lenient adjustments.

Table 3 Columns 1-4 repeat Table 2 but limit the display to coefficients on the base offense level. In addition to coefficients and standard errors, Table 3 shows marginal effects, defined as changes in the dependent variable when increasing the base offense level by one standard deviation (approximately 7 base offense levels).¹⁶ The marginal effect in Column 1—calculated by multiplying each offense level adjustment (0, -2, -3, -4) by the probability of the latent ordered probit predicted value ending up in its range—shows that a one-standard-deviation increase in base offense level decreased a defendant’s mitigating offense level score by 0.027 on a scale from 0 to -4. Though statistically significant, this effect is not large, and corresponds with Weinstein’s (1992) claim that a very small share of federal criminal sentencings—“fewer than five percent”—contained disputes over final offense level.

Columns 5-8 add defendants who were convicted at trial to the sample and controls for trial convictions with a dummy variable. The purpose of these estimations is to determine whether the relationships between base offense level and mitigating role are robust to a more heterogeneous population. Coefficients and marginal effects on base offense level in Columns 5-8 are very similar to those in Columns 1-4. The dummy variable indicating trial conviction is significantly positive in all estimations, suggesting that low-level defendants were less likely to proceed to trial and/or defendants convicted at trial were less likely to receive mitigating-role adjustments.¹⁷ Since the base offense level coefficients in Columns 1-4 and Columns 5-8 are so similar, the rest of this paper omits trial observations

¹⁵ Borjas, Grogger, and Hanson (2010) suggest that immigrants’ potential deportation is a substitute for longer periods of incarceration.

¹⁶ It is calculated by finding the average expected value of R when increasing each i ’s base offense level from 0.5 standard deviations below its actual value to 0.5 standard deviations above it.

¹⁷ Marginal effects of dummy variables in Table 3 are calculated by examining the change in the expected value of R when changing *TRIAL* from 0 to 1.

from all estimations in order to simplify the reporting of results and limit testing to a more homogenous sample.

Columns 9-12 uses further examines the relationship between base offense level and mitigating-role adjustment by adding dummy variables for judicially-imposed downward and upward departures. Since judges could reduce a defendant's prison sentence either via a downward departure or a role-in-the-offense adjustment, it is possible that downward departures served as a substitute for role-in-the-offense adjustments. In this case, failing to control for departures could bias the negative coefficients on base offense level in Table 2 Columns 1-4 towards zero (Wooldridge 2002).

Adding departure controls does not change the base offense level coefficients, suggesting that downward departures did not serve as meaningful substitutes for role mitigation. Coefficients on downward departure show that defendants who receive downward departures did not receive significantly more mitigating-role adjustments (Column 10), but were significantly more likely to receive larger mitigating-role adjustments conditional on receiving one (Columns 11-12). This suggests that judges used downward departures to further reduce sentences for lower-level conspirators. Defendants who receive upward departures received significantly and substantially less lenient mitigating-role adjustments, perhaps reflecting judges' and prosecutors' beliefs that such defendants possessed moral turpitude.

b. Demographic differences

Table 4 shows results from estimations interacting base offense level with different demographic and drug-type controls to determine whether the relationship between base offense level and mitigating-role adjustment differed for different types of defendants. Stand-alone dummy variables capturing mean differences by demographics and drug type are included in all estimations, but they are not reported. Marginal effects are omitted due to space constraints.

The Columns 1-4 coefficients on Base Offense Level*Female show that women received significantly more lenient mitigating-role adjustments related to high base offense levels than men. This result is consistent with numerous findings that women receive relatively lenient treatment in the

criminal-justice system (Mustard 2001, Schazenbach 2005, Albonetti 2007, Sorensen et al 2012, Nutting 2013 and 2015).¹⁸ Black defendants who faced higher base offense levels received significantly fewer Minimal/Minor -3 and Minimal -4 adjustments than white defendants (Columns 3-4).

Effects for women are unchanged when adding controls for interactions between base offense level and drug type (Columns 5-8). The positive coefficients in on Base Offense Level*Black disappear, presumably because blacks were more likely to be crack dealers, and crack dealers received significantly fewer Minimal/Minor -3 and Minimal -4 adjustments when facing higher base offense levels.¹⁹ The negative coefficient on Base Offense Level*Hispanic in Column 7 becomes insignificant when I add interaction controls for base offense level with immigration status and education level (not shown).

Coefficients on base offense level itself are insignificant in all eight columns in Table 4. This suggests that most all of the effect of more severe charges regarding role-in-the-offense adjustments accrued to female defendants.

c. Does conspiracy size explain role-in-the-offense adjustments?

This subsection of the paper attempts to test whether a factor so far omitted from estimations—conspiracy size—helps explain why defendants facing higher base offense levels receive more lenient role-in-the-offense adjustments. It is possible that larger conspiracies may, simply because of their size, have had more lower-level traffickers than smaller conspiracies. This could drive the results showing that high base offense levels, representing large amounts of drugs dealt by (presumably) large conspiracies, are correlated with lower-level roles in the offense.

Unfortunately, MFCS does not contain a variable capturing the conspiracy size of low-level or mid-level defendants, so adding a direct control for conspiracy size to Equation (1) is not possible. But a proxy for conspiracy size can be created through aggravating (high-level) role adjustment variables, which are partially defined by conspiracy size: Aggravating +4 and +3 adjustments are reserved for conspiracies “that involved five or more participants or [were] otherwise extensive” while Aggravating

¹⁸ Schazenbach (2005) finds that male judges, but not female judges, sentence female defendants more leniently.

¹⁹ Almost 60 percent of black defendants in the sample are convicted crack dealers.

+2 adjustments are for leaders of smaller conspiracies. Aggravating roles are more likely in larger conspiracies: estimations available from the author upon request show that defendants who are involved in larger conspiracies, as approximated by their base offense levels (which are determined by quantity of drugs trafficked), are significantly and substantially more likely to receive larger aggravating-role adjustments.

Higher base offense levels, then, are associated both with more lenient mitigating-role adjustments (Tables 2-3) and more severe aggravating-role adjustments, perhaps because higher base offense levels are correlated with larger conspiracies. We can proxy conspiracy size, then, by controlling for the frequency of aggravating-role adjustments in a defendant's drug trafficking milieu. This may explain some of the relationship between higher base offense levels and more lenient mitigating-role adjustments.

Since a defendant's "drug-trafficking milieu" is hard to define, I use two alternative definitions. One defines milieu as defendants who dealt primary drug n and were sentenced in federal district d during all years in the sample. The other defines milieu as the defendants who dealt primary drug n and were sentenced in year t in all districts in the sample. For both definitions, I create *AGGRAV_SHARE*, a vector of three controls capturing the share of defendants (excluding defendant i himself) who had Aggravating +4, +3, and +2 adjustments in each milieu. Adding these new controls yields

$$R_{indt} = \Phi(C_{indt}) + \gamma X_{indt} + \lambda Z_{indt} + \rho AGGRAV_SHARE_{nd} + \theta_d + \eta_t + \tau_n + \varepsilon_{indt} \quad (2a)$$

when milieu is defined as drug-district intersection and

$$R_{indt} = \Phi(C_{indt}) + \gamma X_{indt} + \lambda Z_{indt} + \rho AGGRAV_SHARE_{td} + \theta_d + \eta_t + \tau_n + \varepsilon_{indt} \quad (2b)$$

when milieu is defined as drug-year intersection. τ_n represents fixed effects control for drug type. In Equation (1) τ_n was included in X .

According to my expectations, larger shares of Aggravating +4 and +3 defendants —i.e. more frequent exposure to high-level dealers—should indicate a larger presence of large drug conspiracies and therefore a greater probability of a defendant receiving a more lenient mitigating-role adjustment. Thus

coefficients on share Aggravating +4 and +3 should be negative. More importantly, if defendants with higher base offense levels receive more lenient role-in-the-offense adjustments because of their involvement in larger conspiracies, controlling for *AGGRAV_SHARE* should attenuate the negative coefficients on base offense level towards zero.

Table 5 shows results of estimations of Equations (2) and (3). Columns 1-4 show the results from Table 3 Panel A, i.e. base offense level coefficients when omitting *AGGRAV_SHARE* controls. Columns 5-8 show results when including *AGGRAV_SHARE* controls defining milieu as drug-district intersection and Columns 9-12 show results defining milieu as drug-year intersection. Coefficients on base offense level in Columns 5-8 and 9-12 are slightly larger than their counterparts in Columns 1-4. This suggests that conspiracy size does not explain the observed relationship between base offense level and mitigating-role adjustments, boosting the probability that defendants facing higher base offense levels received more lenient mitigating-role adjustments because of judicial and/or prosecutorial manipulation of sentencing guidelines. The *AGGRAV_SHARE* coefficients depend substantially on which definition of milieu is used. When using drug-district intersection (Columns 5-8), coefficients on Aggravating +3 share indicate that more frequent large conspiracies are associated, if anything, with *less* lenient mitigating-role adjustments, the opposite of what had been hypothesized.²⁰ When using drug-year intersection (Columns 9-12), coefficients on Aggravating +4 share indicate that more large conspiracies are associated with more low-level roles.

Since Table 4 suggests that conspiracy size does not explain why defendants with higher base offense levels receive more lenient mitigating-role adjustments, the rest of the estimations in this paper omit these controls.

d. Substantial assistance departures, mandatory minimums, and safety valves

Results from Tables 2-5 show some evidence consistent with the hypothesis that judges and/or prosecutors manipulated mitigating role-in-the-offense adjustments to reduce prison sentences for

²⁰ It is possible that large conspiracies are so large as to crowd out other competing conspiracies, meaning that fewer high-level defendants may correspond with more lower-level defendants. This would cause the coefficients on share Aggravating +4 and +3 to be positive.

defendants facing especially high base offense levels. This section tests whether the relationship between base offense level and mitigating role adjustment differed among defendants facing different situations, such as mandatory minimum sentences and/or substantial assistance departures. I hypothesize that defendants who received substantial assistance departures and/or were eligible for safety valve releases from mandatory minimum sentences experienced less of a relationship between base offense level and mitigating-role adjustment than other defendants. These defendants could see their prison sentences reduced by judges and/or prosecutors at very low cost—specifically, a simple application of the substantial assistance departure or safety valve—and judges and/or prosecutors would not have to manipulate mitigating-role adjustments to shorten their prison sentences.

Table 6 shows results of Equation (1) on the population of defendants who received substantial assistance departures. No Table 6 coefficient is significant, indicating that there was no significant emphasis on reduction of offense levels for substantial-assistance defendants facing higher base offense levels. Table 6 indicates that when judges used substantial assistance sentence reductions, role-in-the-offense manipulations via mitigating-role adjustments did not occur. This is consistent with an explanation that, in terms of sentence reduction, substantial assistance departures were a low-cost substitute to mitigating-role manipulations.

To further examine the role of substantial assistance departures and safety valves, I perform difference-in-difference estimations taking the form

$$R_{idt} = \Phi(C_{idt}) + \gamma X_{idt} + \lambda Z_{idt} + \theta_d + \eta_t + SUBASST_{idt} + SAFETYELIGIBLE_{idt} + SUBASST_{idt} * \Phi(C_{idt}) + SAFETYELIGIBLE_{idt} * \Phi(C_{idt}) + \varepsilon_{idt}. \quad (3)$$

SUBASST is a dummy variable equal to 1 if the defendant received a substantial assistance departure. *SAFETYELIGIBLE* is a dummy equal to 1 if the defendant was eligible a safety valve release from a mandatory minimum sentence, defined as a having criminal history category of I, no weapon enhancement, and no aggravating-role adjustment. These two dummies are interacted with $\Phi(C_{idt})$, the linear control for base offense level. A positive coefficient on $SUBASST_{idt} * \Phi(C_{idt})$ would indicate that

defendants who received substantial assistance departures received less lenient mitigating-role adjustments when facing more severe charges. This would be consistent with the hypothesis of this paper, since such defendants could receive a lower sentence through the low-cost substantial assistance departure. Likewise, a positive coefficient on $SAFETYELIGIBLE_{idt} * \Phi(C_{idt})$ would indicate that defendants who were eligible for safety valve releases from mandatory minimum sentences did not need their mitigating-role adjustments lowered when facing more severe charges, because their sentence could be lowered via the lower-cost safety valve.²¹

Table 7 shows the sample distributions of mitigating-role adjustments for defendants who pleaded guilty, i.e. were not convicted at trial. Distributions are separated by length of mandatory minimum sentence faced (0, 60, or 120 months),²² plus whether the defendants received a substantial assistance departure. Defendants who did not receive a substantial assistance departure are further separated by whether they were ineligible or eligible for a safety valve. Among defendants who did not face a mandatory minimum sentence (Columns 1-2), mitigating-role adjustments were more common for those not receiving a substantial assistance departure. Among defendants facing mandatory minimum sentences (Columns 3-8), mitigating-role departures were most common for those who did not receive a substantial assistance departure but were eligible for a safety valve. They were least common among those who did not receive a substantial assistance departure and were not eligible for a safety valve.

I perform estimations of Equation (3) separately for defendants facing no mandatory minimum, those facing a 60-month minimum, and those facing a 120-month minimum. Results are in Table 8. To conserve space, results are limited to ordered probit estimations where mitigating-role adjustment (0 to -4) is the dependent variable. Since defendants facing no mandatory minimum sentence are by definition not eligible for a safety valve, the safety eligibility dummy and its interaction with base offense level are excluded from that population (Column 1).

²¹ I also performed estimations using *SAFETYRECEIPT*, a dummy equal to 1 for defendants who received a safety-valve departure, instead of *SAFETYELIGIBLE*. The *SAFETYELIGIBLE* results were consistently stronger than the *SAFETYRECEIPT* results.

²² Because of small sample size, defendants who faced a mandatory minimum of 240 months or more are not included in Table 6.

The base offense level coefficient in Column 1 shows that, among defendants not facing mandatory minimum sentences, those who did not receive substantial assistance departures received significantly, at the 1% level, more lenient mitigating-role adjustments. The positive coefficient on Base Offense Level*Substantial Assistance, though insignificant, shows that defendants received less lenient mitigating-role adjustments related to higher base offense levels if they received substantial assistance departures. The sum of the base offense level and interaction coefficients show that non-substantial-assistance defendants did not receive significantly more lenient mitigating offense levels when facing higher base offense levels (p-value of 0.169). Thus only defendants who could have their sentences shortened via the low-cost alternative to offense level manipulation did not have their mitigating-role adjustments manipulated. This is consistent with the hypothesis of this paper.

Column 2 shows results for defendants facing 60-month mandatory minimum sentences. Base offense level is again significantly negative. The coefficient on Base Offense Level*Substantial Assistance is significantly positive and the sum of the base offense level coefficient and the Base Offense Level*Safety Valve Eligible coefficient has a p-value of 0.267. The former result shows that defendants who received substantial assistance departures experienced less-lenient mitigating-role adjustments than those who did not, and the latter result shows they experienced no significant relationship between base offense level and mitigating-role adjustment.

Base Offense Level*Safety Eligible is positive (though insignificant), and the sum of Base Offense Level and Base Offense Level *Safety Eligible is insignificantly different from zero. The former result shows that defendants eligible for safety valves experienced less-lenient mitigating-role adjustments than those who were not, and the latter result shows they experienced no significant relationship between base offense level and mitigating-role adjustment.

All of the results in Column 2 are thus consistent with the hypothesis of this paper. Column 3 repeats Column 2 for the sample of defendants facing 120-month mandatory minimum sentences. Results are very similar to those for defendants facing 60-month minimums. Columns 4-5 repeat Columns 2-3 but change the definition of the “Safety Valve Eligible” dummy so that it equals zero for defendants who

receive substantial assistance departures. Defendants who receive substantial assistance departures, according to this modification, could receive vastly reduced sentences through the substantial assistance departures alone, and did not require a safety-valve release. Coefficients on the interaction terms become larger than in Columns 2-3.

Table 8 thus shows strong evidence in support of the hypothesis of this paper. Judges and/or prosecutors manipulated mitigating-role adjustments to reduce sentences for defendants facing high base offense levels. Defendants who could see their sentences reduced via different, lower-cost methods of sentence reduction—substantial assistance departures and safety-valve releases from mandatory minimum sentences—did not experience significant relationships between higher base offense levels and more lenient mitigating-role adjustments. Mitigating-role adjustments did not need to be manipulated for them to receive shorter sentences.

These results should be viewed with the knowledge that prosecutors, not judges, controlled the application of mandatory minimum sentences. It would seem odd for prosecutors to seek leniency vis-à-vis a more lenient role-in-the-offense adjustments while simultaneously hammering defendants with stiff, unavoidable mandatory minimum sentences. Thus Table 8 suggests that judges, not prosecutors, were responsible for the significantly negative relationships between base offense levels and mitigating-role adjustments. Judges may have used mitigating-role adjustments to counteract prosecutorial zeal associated with mandatory minimums.²³

V. The *Booker* decision

This paper's last set of estimations tests whether the January 2005 Supreme Court decision *U.S. v. Booker* had any effect on the relationship between base offense level and manipulation of mitigating-role adjustments. The *Booker* decision changed the guidelines from "mandatory" to "advisory," allowing judges to depart from the guidelines at a lower cost. This may have reduced the incentive for judges and

²³ Fischman and Schanzenbach (2012) find evidence that judges use their sentencing discretion to mitigate racial differences in the application of mandatory minimum charges.

prosecutors to manipulate mitigating-role adjustments for defendants with high base offense levels, since final offense level would be less constraining of a defendant's prison sentence.

To test whether *Booker* impacted role-in-the offense adjustments, I estimate

$$R_{idt} = \Phi(C_{idt}) + \gamma X_{idt} + \lambda Z_{idt} + \theta_d + \eta_t + BOOKER_{idt} + BOOKER_{idt} * \Phi(C_{idt}) + \varepsilon_{idt} \quad (4)$$

where *BOOKER* is a dummy equal to 1 if the sentencing occurred after the *Booker* decision and 0 if before it. The coefficient on the interaction term shows whether the relationship between base offense level and mitigating-role adjustment changed with the *Booker* decision. The dataset in these estimations consists of sentencings from March 2004 to September 2005, forming a 19-month window around the *Booker* decision. Since this time may be sensitive to underlying time trends, η_t is changed from year fixed effects to month fixed effects, the most general time control available in MFCS.

Table 9 shows coefficients from these estimations. In all four columns, coefficients on the interaction terms are tiny and insignificant, offering no evidence that the relationship between base offense level and mitigating-role adjustment changed when the guidelines were loosened.

To further test whether *Booker* affected mitigating-role adjustments, I estimate

$$\begin{aligned} R_{idt} = & \Phi(C_{idt}) + \gamma X_{idt} + \lambda Z_{idt} + \theta_d + \eta_t + BOOKER_{idt} + BOOKER_{idt} * \Phi(C_{idt}) + \\ & SUBASST_{idt} + SAFETYELIGIBLE_{idt} + \\ & SUBASST_{idt} * \Phi(C_{idt}) + SAFETYELIGIBLE_{idt} * \Phi(C_{idt}) + \\ & BOOKER_{idt} * \Phi(C_{idt}) * SUBASST_{idt} + \\ & BOOKER_{idt} * \Phi(C_{idt}) * SAFETYELIGIBLE_{idt} + \varepsilon_{idt} \end{aligned} \quad (5)$$

which is equivalent to Equation (2) plus a dummy variable for the *Booker* decision; plus interaction terms between the *Booker* dummy variable and base offense level, substantial assistance departure, and safety valve eligibility; and plus interactions between the *Booker* dummy, base offense level, and both substantial assistance departure and safety valve eligibility. The coefficients of interest are the “triple-difference” coefficients on $BOOKER_{idt} * \Phi(C_{idt}) * SUBASST_{idt}$ and

$BOOKER_{idt} * \Phi(C_{idt}) * SAFETYELIGIBLE_{idt}$. My hypothesis is that *Booker*, by changing the guidelines

from mandatory to advisory, caused mitigating-role adjustments to rise. But defendants who received substantial assistance departures and were eligible for safety valves did not have their mitigating-role adjustments manipulated pre-*Booker* anyways, as Table 8 showed, so they should have experienced less of an increase in mitigating-role adjustments post-*Booker*. Thus the coefficients on the triple-difference terms should be negative.

Table 10 shows results of these “triple-difference” estimations. Estimations are limited to ordered probit estimations with mitigating-role adjustment (-4 to 0) as the dependent variable. Among defendants not facing a mandatory minimum sentence (Column 1), the coefficient on Base Offense Level*Substantial Assistance**Booker* is significantly negative, in accordance with my hypothesis. Base Offense Level*Substantial Assistance**Booker* is also significantly negative among defendants facing a 60-month mandatory minimum (Columns 2 and 4). Base Offense Level*Safety Valve Eligible**Booker* is significantly negative among defendants facing 120-month mandatory minimums (Columns 3 and 5). Thus Table 10 shows evidence, consistent with my hypothesis, that the application of more lenient mitigating-role adjustments related to higher base offense levels was reduced by the *Booker* decision.

VI. Conclusion

This paper finds that under the federal government’s former mandatory sentencing guidelines system, drug trafficking defendants who faced higher base offense levels (more severe underlying charges) received significantly more lenient role-in-the-offense adjustments when being sentenced. Such findings are consistent with anecdotal reports that federal judges and prosecutors manipulated offense levels to reduce prison sentences. Female defendants received larger role-in-the-offense reductions than men when facing higher base offense levels, a finding that is consistent with research showing that women receive relatively lenient treatment in the criminal justice system. The finding that high base offense levels were related to more-lenient role-in-the-offense adjustments remained intact when controlling for conspiracy size, though this paper’s metric of conspiracy size is very raw.

Difference-in-difference estimations show that there was no significant relationship between base offense level and mitigating-role adjustment among defendants who were eligible for either substantial

assistance departures or safety-valve reductions from mandatory minimum sentences. This suggests that mitigating-role manipulation was a relatively high-cost means of sentence reduction that was only used when lower-cost substitutes were unavailable. That offense levels were reduced for defendants whose high base offense levels were accompanied by stiff, unavoidable mandatory minimum prison sentences suggests that judges may have imposed more lenient role-in-the-offense adjustments to counteract prosecutorial harshness. Findings are supported by estimations showing *Booker* decision changed mitigating-role adjustments less for substantial-assistance defendants and safety-valve eligible defendants.

Future research, perhaps with more detailed data regarding the multi-stage sentencing process, may better be able to pinpoint the place—either through judges at the sentencing hearing, or prosecutors during fact bargaining—where role-in-the-offense adjustments are manipulated for defendants facing stiffer underlying charges. And additional research into the current sentencing guidelines regime, in which guidelines are advisory rather than mandatory, may shed more light on the use of offense level manipulation as a means of sentence reduction.

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Table 1
Summary Statistics

	Panel A: Media Poll (Obs = 983)				Panel B: Coaches Poll (Obs = 998)			
	Mean	SD	Min	Max	Mean	SD	Min	Max
<i>WIN</i>	0.58	0.49	0	1	0.58	0.49	0	1
Better-Ranked Coach Black	0.07	0.26	0	1	0.07	0.26	0	1
Worse-Ranked Coach Black	0.16	0.37	0	1	0.16	0.37	0	1
<i>BETTERRANK</i>	8.0	5.4	1	24	8.1	5.6	1	24
<i>WORSERANK</i>	16.6	6.0	2	25	16.7	6.0	2	25
<i>BETTERRANKHOME</i>	0.37	0.48	0	1	0.35	0.48	0	1
<i>NEUTRALSITE</i> (Non-NCAA Tournament)	0.15	0.36	0	1	0.16	0.37	0	1
<i>NCAAEARLYROUND</i>	0.08	0.27	0	1	0.08	0.27	0	1
<i>NCAAREGIONAL</i>	0.07	0.25	0	1	0.07	0.25	0	1
<i>NCAAFINALFOUR</i>	0.02	0.14	0	1	0.02	0.14	0	1
<i>WEEKOFSEASON</i> (percentage, 0-100)	49.2	32.6	0	95	48.4	32.8	0	95
<i>CONFERENCEGAME</i>	0.65	0.48	0	1	0.63	0.48	0	1

Table 2

Media Poll estimations on probability of better-ranked team winning

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1)	(2)	(3)	(4)	(5)	(6)
Better-Ranked Coach Black	0.005 [0.070]	0.046 [0.067]	0.050 [0.061]	0.057 [0.061]	0.072 [0.057]	0.093* [0.054]
Worse-Ranked Coach Black	0.032 [0.042]	0.027 [0.041]	0.019 [0.043]	0.018 [0.043]	0.007 [0.043]	0.010 [0.039]
<i>BETTERRANK</i>		-0.020*** [0.003]	-0.019*** [0.003]	-0.031*** [0.009]		
$(BETTERRANK^2)/10$				0.006 [0.004]		
<i>WORSERANK</i>		0.013*** [0.003]	0.014*** [0.003]	0.020 [0.014]		
$(WORSERANK^2)/10$				-0.002 [0.004]		
<i>BETTERRANKHOME</i>			0.241*** [0.038]	0.243*** [0.037]	0.247*** [0.038]	0.259*** [0.043]
<i>NEUTRALSITE</i>			0.106*** [0.036]	0.108*** [0.037]	0.110*** [0.040]	0.131*** [0.039]
<i>NCAAEARLYROUND</i>			-0.012 [0.071]	-0.011 [0.071]	-0.011 [0.072]	0.008 [0.075]
<i>NCAAREGIONAL</i>			0.014 [0.069]	0.010 [0.069]	0.018 [0.073]	0.023 [0.078]
<i>NCAAFINALFOUR</i>			0.150** [0.068]	0.146** [0.069]	0.221*** [0.076]	0.227*** [0.061]
<i>WEEKOFSEASON</i>			-0.000 [0.001]	-0.000 [0.001]	0.000 [0.001]	-0.000 [0.001]
<i>CONFERENCEGAME</i>			-0.087 [0.055]	-0.087 [0.054]	-0.094* [0.049]	-0.081* [0.048]
Rank Controls	None	Linear	Linear	Quadratic	Fixed Effects	Fixed Effects
N	983	983	983	983	983	1076
R-sq	0.013	0.052	0.103	0.105	0.155	0.154

Table 3

Coaches Poll estimations on probability of better-ranked team winning

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1)	(2)	(3)	(4)	(5)	(6)
Better-Ranked Coach Black	0.035 [0.068]	0.063 [0.067]	0.059 [0.061]	0.074 [0.060]	0.082 [0.050]	0.082* [0.050]
Worse-Ranked Coach Black	0.025 [0.041]	0.017 [0.038]	0.011 [0.040]	0.010 [0.039]	0.009 [0.038]	0.014 [0.035]
<i>BETTERRANK</i>		-0.017*** [0.003]	-0.015*** [0.003]	-0.037*** [0.008]		
$(BETTERRANK^2)/10$				0.010*** [0.004]		
<i>WORSERANK</i>		0.011*** [0.003]	0.012*** [0.003]	0.029* [0.017]		
$(WORSERANK^2)/10$				-0.006 [0.005]		
<i>BETTERRANKHOME</i>			0.247*** [0.042]	0.251*** [0.041]	0.247*** [0.045]	0.251*** [0.043]
<i>NEUTRALSITE</i>			0.152*** [0.037]	0.155*** [0.038]	0.147*** [0.044]	0.137*** [0.046]
<i>NCAAEARLYROUND</i>			-0.011 [0.073]	-0.005 [0.075]	-0.029 [0.074]	-0.019 [0.071]
<i>NCAAREGIONAL</i>			0.002 [0.068]	-0.006 [0.068]	-0.029 [0.081]	-0.018 [0.084]
<i>NCAAFINALFOUR</i>			0.107 [0.074]	0.106 [0.078]	0.108 [0.092]	0.108 [0.091]
<i>WEEKOFSEASON</i>			-0.001 [0.001]	-0.001 [0.001]	-0.001 [0.001]	-0.001 [0.001]
<i>CONFERENCEGAME</i>			-0.052 [0.054]	-0.049 [0.054]	-0.045 [0.053]	-0.049 [0.053]
Rank Controls	None	Linear	Linear	Quadratic	Fixed Effects	Fixed Effects
N	1000	1000	1000	1000	1000	1076
R-sq	0.018	0.046	0.100	0.105	0.137	0.137

Table 4

Estimations on probability of better-ranked team winning

All estimations include dummy variable controls for each team's rank

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Media Poll			Coaches Poll			Sagarin Poll		
Only Better-Ranked Coach Black	0.112** [0.047]	0.130*** [0.045]	0.144*** [0.050]	0.126*** [0.047]	0.120** [0.048]	0.144*** [0.051]	-0.053 [0.063]	-0.017 [0.049]	-0.004 [0.046]
Only Worse-Ranked Coach Black	0.026 [0.044]	0.028 [0.040]	0.018 [0.038]	0.029 [0.038]	0.033 [0.036]	0.020 [0.036]	0.012 [0.042]	0.018 [0.040]	-0.002 [0.038]
Both Coaches Black	-0.308* [0.174]	-0.296* [0.172]	-0.293* [0.173]	-0.335** [0.160]	-0.323** [0.161]	-0.313* [0.163]	-0.109 [0.143]	-0.095 [0.113]	-0.086 [0.109]
<i>BETTERRANKTENURE</i> ^{0.5}			0.015 [0.012]			0.023* [0.013]			0.019* [0.012]
<i>WORSEERANKTENURE</i> ^{0.5}			-0.027* [0.014]			-0.025* [0.014]			-0.037*** [0.008]
<i>BETTERRANKHOME</i>	0.245*** [0.038]	0.257*** [0.043]	0.259*** [0.042]	0.244*** [0.045]	0.248*** [0.043]	0.249*** [0.042]	0.241*** [0.036]	0.271*** [0.031]	0.273*** [0.029]
<i>NEUTRALSITE</i>	0.111*** [0.041]	0.132*** [0.040]	0.144*** [0.039]	0.148*** [0.044]	0.138*** [0.047]	0.146*** [0.046]	0.102** [0.050]	0.159*** [0.035]	0.179*** [0.035]
<i>NCAAEARLYROUND</i>	-0.016 [0.072]	0.004 [0.074]	-0.001 [0.074]	-0.032 [0.074]	-0.022 [0.070]	-0.022 [0.070]	0.051 [0.098]	0.105 [0.081]	0.146* [0.081]
<i>NCAAREGIONAL</i>	0.016 [0.072]	0.021 [0.078]	0.027 [0.076]	-0.030 [0.081]	-0.020 [0.083]	-0.012 [0.080]	0.028 [0.086]	0.094 [0.078]	0.145 [0.100]
<i>NCAAFINALFOUR</i>	0.221*** [0.076]	0.225*** [0.061]	0.216*** [0.063]	0.106 [0.092]	0.105 [0.091]	0.102 [0.094]	0.024 [0.139]	0.081 [0.127]	0.139 [0.121]
<i>WEEKOFSEASON</i>	0.000 [0.001]	-0.000 [0.001]	-0.000 [0.001]	-0.001 [0.001]	-0.001 [0.001]	-0.001 [0.001]	0.001 [0.001]	-0.000 [0.001]	-0.000 [0.001]
<i>CONFERENCEGAME</i>	-0.100** [0.049]	-0.087* [0.048]	-0.072 [0.048]	-0.055 [0.052]	-0.058 [0.052]	-0.044 [0.048]	-0.027 [0.052]	-0.003 [0.037]	0.041 [0.044]
Includes unranked teams that are ranked in other poll(s)	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
N	983	1076	1076	1000	1076	1076	961	1270	1270
R-sq	0.159	0.158	0.162	0.142	0.141	0.147	0.126	0.121	0.130

Table 5

Robustness Checks on "Only Better-Ranked Coach Black" Coefficient

All Estimations include Fixed Effects Controls for Team Ranks

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1)	(2)	(3)	(4)	(3)	(4)
	Media		Coaches		Sagarin	
1. Baseline	0.112** [0.047]	0.130*** [0.045]	0.126*** [0.047]	0.120** [0.048]	-0.053 [0.063]	-0.017 [0.049]
2. Controlling for Conference	0.101** [0.049]	0.118** [0.047]	0.115** [0.047]	0.103** [0.047]	-0.035 [0.086]	0.003 [0.072]
3. Omitting John Thompson III games	0.102 [0.069]	0.136** [0.066]	0.150** [0.071]	0.155** [0.067]	-0.062 [0.059]	-0.022 [0.046]
4. Adding Conference Fixed Effects and Omitting John Thompson III games	0.076 [0.065]	0.111* [0.067]	0.132* [0.073]	0.128* [0.070]	-0.019 [0.085]	0.015 [0.069]
5. 2005-10 Games Only	0.058 [0.079]	0.049 [0.071]	0.069 [0.082]	0.074 [0.070]	0.024 [0.066]	0.007 [0.054]
6. 2010-15 Games Only	0.169*** [0.062]	0.206*** [0.071]	0.209** [0.097]	0.219** [0.100]	-0.145* [0.075]	-0.068 [0.065]
Include teams ranked only in other poll(s)	No	Yes	No	Yes	No	Yes

Table 6

Media Poll estimations on probability of better-ranked team winning

Fixed Effects for worse-ranked team

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
			<u>Media</u>			<u>Coaches</u>		<u>Sagarin</u>	
Better-Ranked Coach Black	-0.077*** [0.024]	-0.044** [0.020]	-0.045** [0.018]	-0.042** [0.020]	-0.040* [0.021]	-0.034* [0.019]	-0.033* [0.019]	-0.061*** [0.020]	-0.059*** [0.020]
<i>BETTERRANK</i>		-0.008*** [0.001]	-0.008*** [0.001]						
<i>WORSERANK</i>									
<i>WORSERANKUNRANKED</i>									
<i>BETTERRANKTENURE</i> ^{0.5}					0.003 [0.006]		0.002 [0.006]		0.005 [0.005]
<i>BETTERRANKHOME</i>			0.202*** [0.015]	0.201*** [0.015]	0.201*** [0.015]	0.203*** [0.015]	0.203*** [0.015]	0.203*** [0.018]	0.203*** [0.018]
<i>NEUTRALSITE</i>			0.149*** [0.025]	0.149*** [0.025]	0.149*** [0.025]	0.149*** [0.026]	0.149*** [0.026]	0.132*** [0.030]	0.132*** [0.030]
<i>NCAAEARLYROUND</i>			0.145*** [0.037]	0.146*** [0.038]	0.146*** [0.037]	0.138*** [0.041]	0.138*** [0.041]	0.138*** [0.041]	0.138*** [0.041]
<i>NCAAREGIONAL</i>			0.413*** [0.073]	0.397*** [0.074]	0.399*** [0.073]	0.417*** [0.077]	0.418*** [0.076]	0.455*** [0.077]	0.456*** [0.076]
<i>NCAAFINALFOUR</i>			0.869*** [0.281]	0.905*** [0.276]	0.904*** [0.277]	1.082*** [0.191]	1.081*** [0.191]	1.080*** [0.177]	1.075*** [0.176]
<i>WEEKOFSEASON</i>			-0.000 [0.000]	-0.000* [0.000]	-0.000* [0.000]	-0.001** [0.000]	-0.001** [0.000]	-0.000 [0.000]	0.000 [0.000]
<i>CONFERENCEGAME</i>			-0.017 [0.023]	-0.015 [0.023]	-0.015 [0.023]	-0.011 [0.022]	-0.011 [0.022]	0.001 [0.022]	0.001 [0.022]
Rank Controls	None	Linear	Linear	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects	Fixed Effects
N	6832	6832	6832	6832	6832	6800	6800	6554	6554
R-sq	0.355	0.368	0.411	0.415	0.415	0.417	0.417	0.413	0.413

Table 7

Robustness Checks on "Better-Ranked Coach Black" Coefficient, Games against Unranked Teams

All Estimations include Fixed Effects Controls for Worse-Ranked (Unranked) Team/Season

All Estimations include Fixed Effects Controls for Better-Ranked Team's Rank

Standard errors clustered by better-ranked coach and worse-ranked coach in brackets

*** = significant at 1%; ** = significant at 5%; * = significant at 10%

	(1) Media	(2) Coaches	(3) Sagarin
1. Baseline	-0.042** [0.020]	-0.034* [0.019]	-0.061*** [0.020]
2. Controlling for Conference	-0.038* [0.021]	-0.026 [0.020]	-0.062*** [0.021]
3. Omitting John Thompson III games	-0.048** [0.024]	-0.031 [0.024]	-0.073*** [0.024]
4. Adding Conference Fixed Effects and Omitting John Thompson III games	-0.045* [0.025]	-0.025 [0.027]	-0.075*** [0.024]
5. 2005-10 Games	-0.026 [0.028]	-0.014 [0.023]	-0.046* [0.024]
6. 2010-15 Games	-0.054* [0.029]	-0.064** [0.031]	-0.077** [0.032]

Appendix Table 1
Summary Statistics

	Sagarin Poll (Obs = 961)			
	Mean	SD	Min	Max
<i>WIN</i>	0.61	0.49	0	1
Better-Ranked Coach Black	0.08	0.27	0	1
Worse-Ranked Coach Black	0.16	0.37	0	1
<i>BETTERRANK</i>	8.1	5.6	1	24
<i>WORSERANK</i>	16.2	5.9	2	25
<i>BETTERRANKHOME</i>	0.38	0.49	0	1
<i>NEUTRALSITE</i> (Non-NCAA Tournament)	0.16	0.36	0	1
<i>NCAAEARLYROUND</i>	0.08	0.27	0	1
<i>NCAAREGIONAL</i>	0.07	0.25	0	1
<i>NCAAFINALFOUR</i>	0.02	0.15	0	1
<i>WEEKOFSEASON</i> (percentage, 0-100)	62.9	27.6	0	95
<i>CONFERENCEGAME</i>	0.67	0.47	0	1

Appendix Table 2
Observations of Black Coaches in Sample
Games where Both Teams are Ranked

	<u>Media Poll</u>			<u>Coaches Poll</u>			<u>Sagarin Poll</u>		
	Better Ranked	Worse Ranked	Total	Better Ranked	Worse Ranked	Total	Better Ranked	Worse Ranked	Total
John Thompson III	24	37	61	21	39	60	27	37	64
Tubby Smith	8	13	21	8	16	24	5	10	15
Lorenzo Romar	3	17	20	4	15	19	2	9	11
Mike Anderson	5	12	17	6	12	18	5	15	20
Oliver Purnell	2	14	16	3	12	15	8	14	22
Frank Haith	6	6	12	7	6	13	6	7	13
Kevin Ollie	1	11	12	2	10	12	1	8	9
Leonard Hamilton	1	11	12	0	10	10	1	8	9
Ernie Kent	5	5	10	3	5	8	1	6	7
Trent Johnson	3	7	10	3	5	8	5	5	10
Al Skinner	5	2	7	6	2	8	1	7	8
Jeff Capel	3	4	7	4	4	8	5	1	6
Mike Davis	2	5	7	2	5	7	2	6	8
Paul Hewitt	0	7	7	1	6	7	2	9	11
Shaka Smart	1	2	3	1	4	5	1	1	2
Tommy Amaker	1	2	3	0	2	2	2	3	5
Chris Lowery	1	1	2	0	2	2	1	3	4
Ed Cooley	0	2	2	0	3	3	0	1	1
Karl Hobbs	0	2	2	0	2	2	1	1	2
Tony Barbee	0	0	0	0	1	1	0	1	1
Johnny Dawkins	0	0	0	0	1	1	0	1	1
Dave Leitao	0	0	0	0	1	1	0	0	0
Anthony Grant	0	0	0	0	0	0	1	1	2
Cuonzo Martin	0	0	0	0	0	0	0	2	2
Stan Heath	0	0	0	0	0	0	0	1	1
Ricardo Patton	0	0	0	0	0	0	0	1	1
Total	71	160	231	71	163	234	77	158	235